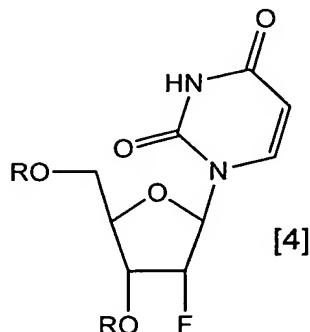


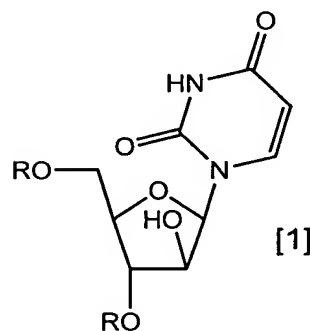
## CLAIMS

1. A process for producing 2'-deoxy-2'-fluorouridine in 3',5'-hydroxyl-protected form, represented by the formula [4],



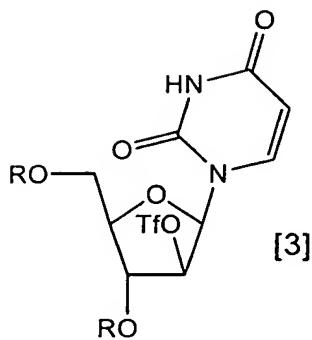
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[in the formula, R represents a protecting group of hydroxyl group] by reacting 1- $\beta$ -D-arabinofuranosyluracil in 3',5'-hydroxyl-protected form, represented by the formula [1],



10 [in the formula, R represents a protecting group of hydroxyl group] with a trifluoromethanesulfonylating agent represented by the formula [2],  
 $\text{CF}_3\text{SO}_2\text{X}$  [2]

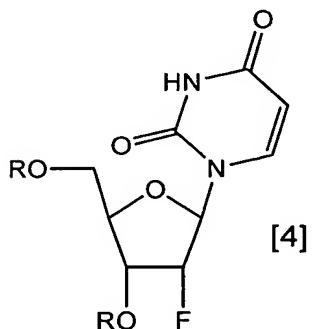
[in the formula, X represents a F atom, Cl atom or  $\text{CF}_3\text{SO}_3$  group] in the presence of an organic base, to convert it to a 2'-triflate form represented by the formula [3].



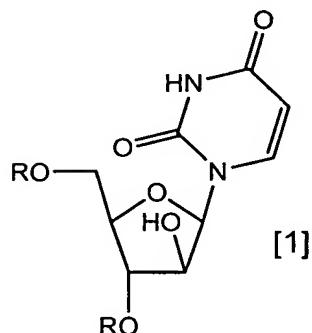
[in the formula, R represents a protecting group of hydroxyl group, and Tf represents a  $\text{CF}_3\text{SO}_2$  group], followed by reacting with a fluorinating agent comprising "a salt or complex comprising an organic base and hydrofluoric acid".

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2. A process for producing 2'-deoxy-2'-fluorouridine in 3',5'-hydroxyl-protected form, represented by the formula [4],

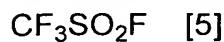


10 [in the formula, R represents a protecting group of hydroxyl group] by reacting 1'-β-D-arabinofuranosyluracil in 3',5'-hydroxyl-protected form, represented by the formula [1],

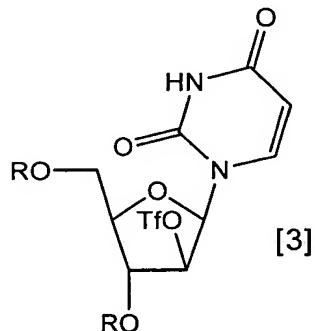


[in the formula, R represents a protecting group of hydroxyl group] with a

trifluoromethanesulfonylating agent represented by the formula [5],

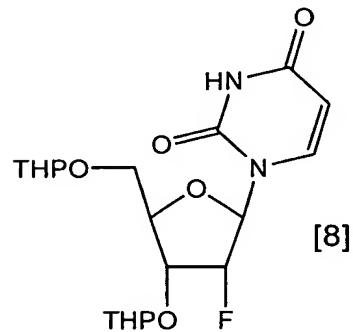


in the presence of triethylamine, to convert it to a 2'-triflate form represented by the formula [3],

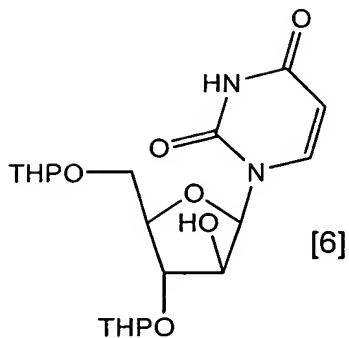


[in the formula, R represents a protecting group of hydroxyl group, and Tf represents a  $\text{CF}_3\text{SO}_2$  group], followed by reacting with a fluorinating agent comprising "a salt or complex comprising triethylamine and hydrofluoric acid".

10 3. A process for producing 2'-deoxy-2'-fluorouridine in 3',5'-hydroxyl-protected form, represented by the formula [8],

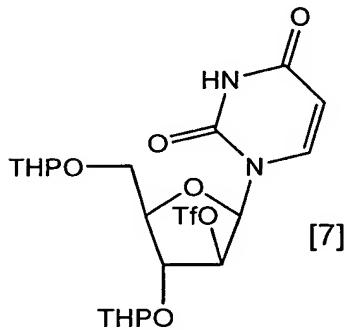


[in the formula, THP represents a tetrahydropyranyl group] by reacting 1- $\beta$ -D-arabinofuranosyluracil in 3',5'-hydroxyl-protected form, represented by 15 the formula [6],



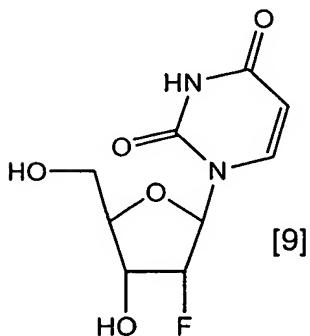
[in the formula, THP represents a tetrahydropyranyl group] with a trifluoromethanesulfonylating agent represented by the formula [5],  
 $\text{CF}_3\text{SO}_2\text{F}$  [5]

5 in the presence of triethylamine, to convert it to a 2'-triflate form represented by the formula [7],

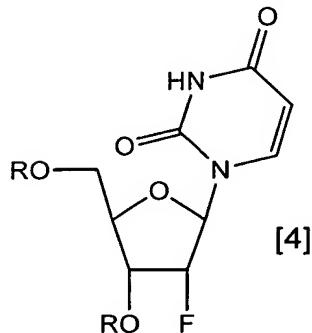


[in the formula, THP represents a tetrahydropyranyl group, and Tf represents a  $\text{CF}_3\text{SO}_2$  group], followed by reacting with a fluorinating agent comprising "a salt or complex comprising triethylamine and hydrofluoric acid".

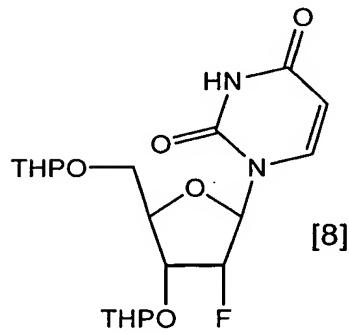
10 4. A process for producing 2'-deoxy-2'-fluorouridine represented by the formula [9],



by reacting 2'-deoxy-2'-fluorouridine in 3',5'-hydroxyl-protected form represented by the formula [4],

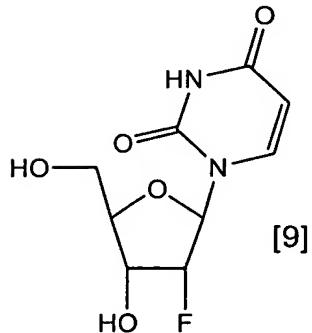


[in the formula, R represents a protecting group of hydroxyl group] or  
5 2'-deoxy-2'-fluorouridine in 3',5'-hydroxyl-protected form represented by the formula [8],

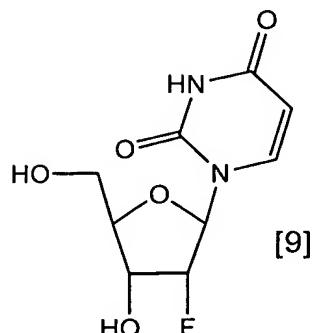


[in the formula, THP represents a tetrahydropyranyl group], which has been produced by any process of claim 1, claim 2 and claim 3, with a deprotecting 10 agent.

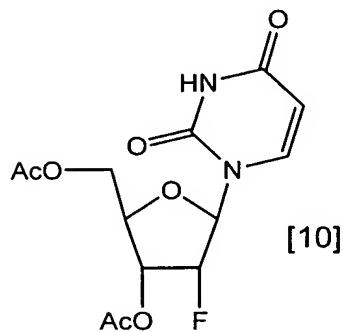
5. A process for purifying 2'-deoxy-2'-fluorouridine represented by the formula [9],



comprising reacting 2'-deoxy-2'-fluorouridine represented by the formula [9],



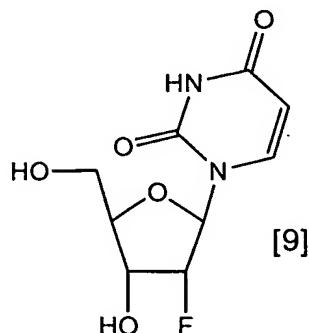
with an acetylating agent in the presence of an organic base, to convert it to 2'-deoxy-2'-fluorouridine in 3',5'-diacetylated form represented by the formula 5 [10],



[in the formula, Ac represents an acetyl group], followed by a recrystallization purification of the 2'-deoxy-2'-fluorouridine in 3',5'-diacetylated form and then reacting with a deacetylating agent.

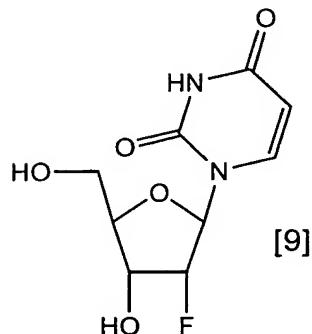
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6. A process for purifying 2'-deoxy-2'-fluorouridine represented by the formula [9],

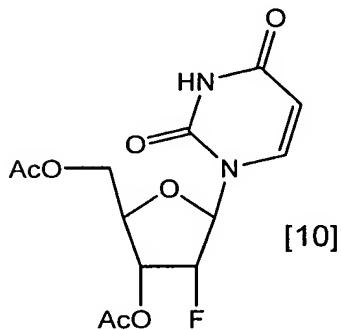


comprising reacting 2'-deoxy-2'-fluorouridine, which has been produced by the

process of claim 4 and is represented by the formula [9],



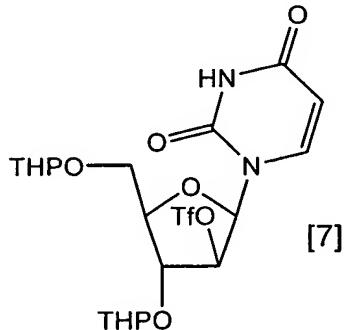
with an acetylating agent in the presence of an organic base, to convert it to 2'-deoxy-2'-fluorouridine in 3',5'-diacetylated form represented by the formula 5 [10],



[in the formula, Ac represents an acetyl group], followed by a recrystallization purification of the 2'-deoxy-2'-fluorouridine in 3',5'-diacetylated form and then reacting with a deacetylating agent.

10

7. A 2'-triflate form represented by the formula [7],



[in the formula, THP represents a tetrahydropyranyl group, and Tf represents a  $\text{CF}_3\text{SO}_2$  group].

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